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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/597,558	08/11/2008	Tsugunori Konakawa	FY.51260USINP	2781
20995 7590 03/18/2009 KNOBBE MARTENS OLSON & BEAR LLP 2040 MAIN STREET FOURTEENTH FLOOR IRVINE, CA 92614			EXAMINER VILAKAZI, SIZO BINDA	
			ART UNIT 3747	PAPER NUMBER
			NOTIFICATION DATE 03/18/2009	DELIVERY MODE ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

jcartee@kmob.com  
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<b>Office Action Summary</b>	<b>Application No.</b> 10/597,558	<b>Applicant(s)</b> KONAKAWA, TSUGUNORI	
	<b>Examiner</b> SIZO B. VILAKAZI	<b>Art Unit</b> 3747	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 11 August 2008.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>07/28/2006</u> .  | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:  
  
The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
2. Claims 10-12 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
3. In re Claims 10 and 11, the recitation of “determining a second crank angle at which the increase rate becomes a second specified angle after exceeding the first specified value” is indefinite, as the increase rate is a value and not an angle.

### ***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:  
  
(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.
5. Claims 1-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Raichle et al. (US PG Pub 2002-0021120 A1).
6. In re Claims 1-9, Raichle et al. disclose an engine control system comprising:
  - a. An ion current measuring unit (Fig. 1, Item 24; Paragraph [0014]) adapted to measure a negative ion current in a combustion chamber of an engine

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b. A crank angle measuring unit (Fig. 1, Item 23; Paragraph [0014]) adapted to measure an engine crank angle

c. A controller (Fig. 1, Item 23; Paragraph [0014])

7. The examiner notes that the claims are directed to an apparatus which must be distinguished from the prior art in terms of structure rather than function [MPEP 2114].

Hence, the functional limitations:

d. “a controller adapted to control the engine on the basis of a first crank angle at which an increase rate of the negative ion current relative to the crank angle becomes more than a first specified value and a second crank angle at which the increase rate becomes a second specified value after becoming the first specified value (Claim 1)”,

e. “wherein the first crank angle is a crank angle corresponding to a rising point of the negative ion current on a negative ion current curve indicative of variations in negative ion current relative to crank angles; and the second crank angle is a crank angle corresponding to a peak point of the negative ion current on the negative ion current curve (Claim 2)“,

f. “wherein the controller is adapted to calculate from the first crank angle and the second crank angle a third crank angle corresponding to a fuel combustion center of gravity and the controller is adapted to control the an engine ignition timing so that the third crank angle approximates a specified target crank angle (Claim 3)”,

- g. “wherein the specified target crank angle is not changed according to engine load conditions (Claim 4)”,
- h. “wherein the specified crank angle corresponds to MBT (Claim 5)”,
- i. “wherein the specified target crank angle is set to a predetermined crank angle delayed behind MBT (Claim 6)”,
- j. “wherein the controller is adapted to calculate a variation rate of the third crank angle corresponding to the fuel combustion center of gravity from the first crank angle and the second crank angle, and the controller is adapted to controls an exhaust gas recirculation (EGR) rate of the engine so that the EGR rate decreases when the variation rate increases (Claim 7)”, and
- k. “wherein the controller is adapted to calculate a variation rate of the third crank angle corresponding to the fuel combustion center of gravity from the first crank angle and the second crank angle, and the controller is adapted to control an open-close timing of an intake valve and an exhaust valve of the engine so that the overlap period of the intake valve and the exhaust valve decreases as the variation rate increases (Claim 8)”, which are narrative in form have not been given any patentable weight. In order to be given patentable weight, a functional recitation must be supported by recitation in the claim of sufficient structure to warrant the presence of the functional language. ***In re Schreiber, 128 F.3d 1473, 1477-78, 44 USPQ2d 1429, 1431-32 (Fed. Cir. 1997)***

8. The examiner further notes that with regards to Claim 9, Raichle et al. do not explicitly disclose that the engine control system is used with a vehicle, however this is

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a common configuration in the art, thus it would have been obvious to one having ordinary skill in the art at the time the invention was made to configure the control system with a vehicle in order to achieve enhanced vehicle performance.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to SIZO B. VILAKAZI whose telephone number is (571)270-3926. The examiner can normally be reached on M-F: 10:00am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen K. Cronin can be reached on (571) 272-4536. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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Examiner, Art Unit 3747

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